

What is claimed is;

1. A natural language processing apparatus for achieving a syntax analysis and/or a syntax generation by using natural language patterns with, at least, pattern name and pattern component,

the natural language processing apparatus comprising:
dictionary reference means for picking up one or more natural language patterns applicable for the syntax analysis and/or the syntax generation among the natural language patterns prepared in a pattern dictionary in advance;

pattern inspection means for inspecting whether the applicable natural language patterns meet a tree structure or not; and

pattern application means for applying the natural language patterns to the tree structure if the natural language patterns meet the tree structure.

2. A natural language processing apparatus according to claim 1, wherein: a pattern application condition is set on the pattern name and pattern component in all or a part of the natural language patterns prepared in a pattern dictionary in advance; and

the pattern inspection means inspect whether the applicable natural language patterns meet a tree structure or not by referring to a pattern application conditions on the applicable natural language patterns.

3. A natural language processing apparatus according to claim 2, wherein: plural natural language patterns with different meaning information are prepared in plural natural language patterns with information on meaning conditions as one of the pattern application conditions; and

a tree structure with appropriate meaning information is decided through the pattern inspection means and the pattern application means.

4. A natural language processing apparatus according to claim 1, wherein information on a priority of a application is attached to the natural language patterns prepared in a pattern dictionary in advance,

the natural language processing apparatus according to claim 1 comprising pattern evaluation means for evaluating the natural language patterns applicable for a tree structure according to the priority information attached thereto.

5. A natural language processing apparatus according to claim 4, wherein: in pattern components, the priority of natural language pattern with meaning conditions is set high among the natural language patterns with only the difference whether having or not the meaning conditions; and

in pattern name, the priority of natural language pattern without meaning conditions is set high among the natural language patterns with only the difference whether having or not the meaning conditions.

6. A natural language processing apparatus according to claim 4, wherein the pattern evaluation means pass over the applicable natural language patterns other than the applicable natural language pattern with the highest priority when plural natural language patterns with the same pattern name and the same pattern application condition and with different information on priority exist.

7. A natural language processing apparatus according to claim 4, wherein the pattern evaluation means pass over the applicable natural language patterns with the priority relatively lower than the normal priority when plural natural language patterns with the same pattern name and the same pattern application condition and with different information on priority exist.

8. A natural language processing apparatus according to

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claim 4, wherein tree structure evaluation means are comprised for evaluating the priority between plural tree structures according to evaluation and allotment means capable of evaluating each of tree structure when the tree structures achieved by the syntax analysis and/or the syntax generation are plural, the evaluation and allotment means in which the priority information in the natural language patterns applied to the sectional tree different in the plural tree structures.

9. A natural language processing apparatus according to claim 8, wherein the tree structure evaluation means reflect the priority information in the natural language patterns applied to the tree structure and reflect the number of terminal numerals constructing the sectional tree different in the plural tree structures in the evaluation and allotment means.

10. A natural language processing apparatus according to claim 8, wherein the tree structure evaluation means reflect the priority information in the natural language patterns applied to the tree structure and reflect the location of node related to a specified priority in the evaluation and allotment means.

11. A natural language processing apparatus according to claim 1 comprising user registration means of natural language patterns.

12. A natural language processing apparatus according to claim 11, wherein the priority higher than that of the natural language patterns of system registration is set on the user registration of natural language patterns.

13. A natural language processing apparatus according to claim 11, wherein tree structure evaluation means are comprised for setting the highest priority on the tree structure with the sectional tree to which the natural language pattern related to user registration is

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applied in the sectional tree different in the plural tree structures when the tree structures achieved by the syntax analysis and/or the syntax generation are plural.

14. A natural language processing method for achieving a syntax analysis and/or a syntax generation by using natural language patterns with, at least, pattern name and pattern component,

the natural language processing apparatus comprising: dictionary reference step for picking up one or more natural language patterns applicable for the syntax analysis and/or the syntax generation among the natural language patterns prepared in a pattern dictionary in advance;

pattern inspection step for inspecting whether the applicable natural language patterns meet a tree structure or not; and

pattern application step for applying the natural language patterns to the tree structure if the natural language patterns meet the tree structure.

15. A natural language processing method according to claim 14, wherein: a pattern application condition is set on the pattern name and pattern component in all or a part of the natural language patterns prepared in a pattern dictionary in advance; and

the pattern inspection step inspects whether the applicable natural language patterns meet a tree structure or not by referring to a pattern application conditions on the applicable natural language patterns.

16. A natural language processing method according to claim 15 wherein: plural natural language patterns with different meaning information are prepared in plural natural language patterns with information on meaning conditions as one of the pattern application conditions; and

a tree structure with appropriate meaning information is

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decided through the pattern inspection step and the pattern application step.

17. A natural language processing method according to claim 14, wherein information on a priority of a application is attached to the natural language patterns prepared in a pattern dictionary in advance,

the natural language processing method according to claim 14 comprising pattern evaluation step for evaluating the natural language patterns applicable for a tree structure according to the priority information attached thereto.

18. A natural language processing method according to claim 17, wherein: in pattern components, the priority of natural language pattern with meaning conditions is set high among the natural language patterns with only the difference whether having or not the meaning conditions; and

in pattern name, the priority of natural language pattern without meaning conditions is set high among the natural language patterns with only the difference whether having or not the meaning conditions.

19. A natural language processing method according to claim 17, wherein the pattern evaluation step passes over the applicable natural language patterns other than the applicable natural language pattern with the highest priority when plural natural language patterns with the same pattern name and the same pattern application condition and with different information on priority exist.

20. A natural language processing method according to claim 17, wherein the pattern evaluation step passes over the applicable natural language patterns with the priority relatively lower than the normal priority when plural natural language patterns with the same pattern name and the same pattern application condition and

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with different information on priority exist.

21. A natural language processing method according to claim 17, wherein tree structure evaluation step is comprised for evaluating the priority between plural tree structures according to evaluation and allotment means capable of evaluating each of tree structure when the tree structures achieved by the syntax analysis and/or the syntax generation are plural, the evaluation and allotment means in which the priority information in the natural language patterns applied to the sectional tree different in the plural tree structures.

22. A natural language processing method according to claim 21, wherein the tree structure evaluation step reflects the priority information in the natural language patterns applied to the tree structure and reflect the number of terminal numerals constructing the sectional tree different in the plural tree structures in the evaluation and allotment means.

23. A natural language processing method according to claim 21, wherein the tree structure evaluation step reflects the priority information in the natural language patterns applied to the tree structure and reflect the location of node related to a specified priority in the evaluation and allotment means.

24. A natural language processing method according to claim 14 comprising user registration means of natural language patterns.

25. A natural language processing method according to claim 24, wherein the priority higher than that of the natural language patterns of system registration is set on the user registration of natural language patterns.

26. A natural language processing method according to claim 24, wherein tree structure evaluation step is comprised for

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setting the highest priority on the tree structure with the sectional tree to which the natural language pattern related to user registration is applied in the sectional tree different in the plural tree structures when the tree structures achieved by the syntax analysis and/or the syntax generation are plural.

27. A natural language processing apparatus for achieving a syntax analysis and/or a syntax generation by using natural language patterns with language name, left side and right side list,

the natural language processing apparatus comprising: all or some of the natural language patterns prepared in a pattern dictionary in advance having a central element information prescribing a central pattern element in a feature restriction or a feature propagation on the left and/or the right side;

pattern inspection means for inspecting also in terms of the feature restriction whether the natural language patterns picked up as the ones applicable for the process of syntax analysis and/or the syntax generation among the natural language patterns prepared in a pattern dictionary in advance meet a tree structure or not; and

pattern application means for applying the natural language patterns to the tree structure if the natural language patterns meet the tree structure and for propagating the feature restriction if the natural language patterns have the central element information.

28. A natural language processing apparatus according to claim 27 wherein the pattern application means restrict the feature to be transmitted according to the definition which is defined per the nonterminal numeral and terminal numeral in transmitting feature information.

29. A natural language processing apparatus according to claim 27 wherein the pattern inspection means and the pattern application means execute a pattern-meeting inspection on and a

pattern application to feature variable applied as a feature restriction in natural language patterns.

30. A natural language processing apparatus according to claim 27 wherein the natural language patterns registered in the pattern dictionary hold the feature restriction information in the form that logical operation can be smoothly achieved.

31. A natural language processing method for achieving a syntax analysis and/or a syntax generation by using natural language patterns with language name, left side and right side list,

the natural language processing apparatus comprising: all or some of the natural language patterns prepared in a pattern dictionary in advance having a central element information prescribing a central pattern element in a feature restriction or a feature propagation on the left and/or the right side;

pattern inspection step for inspecting also in terms of the feature restriction whether the natural language patterns picked up as the ones applicable for the process of syntax analysis and/or the syntax generation among the natural language patterns prepared in a pattern dictionary in advance meet a tree structure or not; and

pattern application step for applying the natural language patterns to the tree structure if the natural language patterns meet the tree structure and for propagating the feature restriction if the natural language patterns have the central element information.

32. A natural language processing method according to claim 31 wherein the pattern application step restricts the feature to be transmitted according to the definition which is defined per the nonterminal numeral and terminal numeral in transmitting feature information.

33. A natural language processing method according to claim 31 wherein the pattern inspection step and the pattern

application step execute a pattern-meeting inspection on and a pattern application to feature variable applied as a feature restriction in natural language patterns.

34. A natural language processing method according to claim 31 wherein the natural language patterns registered in the pattern dictionary hold the feature restriction information in the form that logical operation can be easily executed.

35. A natural language pattern dictionary creation apparatus for creating pattern dictionary adopted to a natural language processing apparatus for achieving a syntax analysis and/or a syntax generation by using natural language patterns with language name, left side and right side list,

the natural language pattern dictionary creation apparatus comprising: a source dictionary which stores the natural language patterns all of which described in a text data and has in some cases a central element information prescribing a central pattern element in a feature restriction or a feature propagation on the left and/or the right side; and

a restriction information form conversion means for storing a feature restriction information of the natural language pattern read out from the source dictionary in the pattern dictionary after converting a feature restriction data formed to achieve logical operation smoothly.

36. A natural language pattern dictionary creation apparatus according to claim 35 wherein the restriction information form conversion means comprise: a feature definition storage part for storing definition information on feature information consisting of feature name and feature value for restriction;

a feature restriction data format decision part for deciding the data format formed to achieve logical operation smoothly, based on the definition information; and

a conversion part for converting feature restriction information of the natural language pattern into feature restriction data formed to achieve logical operation smoothly, according to the decided data format.

37. A natural language pattern dictionary creation method for creating pattern dictionary adopted to a natural language processing method for achieving a syntax analysis and/or a syntax generation by using natural language patterns with language name, left side and right side list,

the natural language pattern dictionary creation method comprising a restriction information form conversion means for storing a feature restriction information of the natural language pattern read out from the source dictionary, which stores the natural language patterns all of which described in a text data and has in some cases a central element information prescribing a central pattern element in a feature restriction or a feature propagation on the left and/or the right side, in the pattern dictionary after converting a feature restriction data formed to achieve logical operation smoothly.

38. A natural language pattern dictionary creation method according to claim 37 wherein the restriction information form conversion process comprises: a feature restriction data format decision step for deciding the data format formed to achieve logical operation smoothly, based on the pre-stored definition information on feature information consisting of feature name and feature value for restriction; and

a conversion step for converting feature restriction information of the natural language pattern into feature restriction data formed to achieve logical operation smoothly, according to the decided data format.

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